



**2016**  
**Major Automated Information System**  
**Annual Report**



**Consolidated Afloat Networks and Enterprise Services (CANES)**

Defense Acquisition Management  
Information Retrieval  
(DAMIR)

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## Common Acronyms and Abbreviations for MAIS Programs

Acq O&M - Acquisition-Related Operations and Maintenance  
ADM - Acquisition Decision Memorandum  
AoA - Analysis of Alternatives  
ATO - Authority To Operate  
APB - Acquisition Program Baseline  
BY - Base Year  
CAE - Component Acquisition Executive  
CDD - Capability Development Document  
CPD - Capability Production Document  
DAE - Defense Acquisition Executive  
DoD - Department of Defense  
DoDAF - DoD Architecture Framework  
FD - Full Deployment  
FDD - Full Deployment Decision  
FY - Fiscal Year  
IA - Information Assurance  
IATO - Interim Authority to Operate  
ICD - Initial Capability Document  
IEA - Information Enterprise Architecture  
IOC - Initial Operational Capability  
IP - Internet Protocol  
IT - Information Technology  
KPP - Key Performance Parameter  
\$M - Millions of Dollars  
MAIS - Major Automated Information System  
MAIS OE - MAIS Original Estimate  
MAR – MAIS Annual Report  
MDA - Milestone Decision Authority  
MDD - Materiel Development Decision  
MILCON - Military Construction  
MS - Milestone  
N/A - Not Applicable  
O&S - Operating and Support  
OSD - Office of the Secretary of Defense  
PB - President's Budget  
RDT&E - Research, Development, Test, and Evaluation  
SAE - Service Acquisition Executive  
TBD - To Be Determined  
TY - Then Year  
U.S.C- United States Code  
USD(AT&L) - Under Secretary of Defense for Acquisition, Technology, & Logistics

## Program Information

**Program Name**

Consolidated Afloat Networks and Enterprise Services (CANES)

**DoD Component**

Navy

## Responsible Office

**Program Manager**

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**Date Assigned:** November 15, 2013

## References

**MAIS Original Estimate**

January 8, 2016

**Approved APB**

Under Secretary of Defense (Acquisition, Technology & Logistics) Approved Acquisition Program Baseline (APB) dated June 18, 2014

## Program Description

Consolidated Afloat Networks & Enterprise Services (CANES) is the Navy's only Program of Record to replace existing afloat networks and provide the necessary infrastructure for applications, systems, and services required for the Navy to dominate the Cyber Warfare domain. CANES is the technical and infrastructure consolidation of existing, separately managed afloat networks including Integrated Shipboard Network Systems, Combined Enterprise Regional Information Exchange System - Maritime, Sensitive Compartmented Information (SCI) Networks, and Submarine Local Area Network. These legacy afloat network designs are currently End of Life and CANES will replace these unaffordable and obsolete networks.

The fundamental goal of CANES is to bring Infrastructure and Platform as a Service, within which current and future iterations of Navy Tactical Network computing and storage capabilities will reside. CANES will provide complete infrastructure, inclusive of hardware, software, processing, storage, and end user devices for Unclassified, Coalition, Secret and SCI for all basic network services (email, web, chat, collaboration) to a wide variety of Navy surface combatants, submarines, Maritime Operations Centers, and aircraft. In addition, hosted applications and systems inclusive of Command and Control, Intelligence, Surveillance and Reconnaissance, Information Operations, Logistics and Business domains require the CANES infrastructure to operate in the tactical environment. Integrating these applications and systems is accomplished through Application Integration, the engineering process used to evaluate and validate compatibility between CANES and the Navy-validated applications, systems and services that will utilize the CANES infrastructure and services. Specific programs, such as Distributed Common Ground System - Navy, Global Command and Control System - Maritime, Naval Tactical Command Support System, and Undersea Warfare Decision Support System, are dependent on the CANES Common Computing Environment to field, host, and sustain their capability because they no longer provide their own hardware. CANES requires that Automated Digital Network System field prior to or concurrently with CANES due to the architectural reliance between the two programs.

CANES will develop updates on a rolling four year hardware baseline and a two year software baseline. CANES is based on the overarching concept of reducing the number of afloat network baselines and providing enhanced efficiency through a single engineering focus on integrated technical solutions. This will allow for streamlined acquisition, contracting test events, and significant lifecycle efficiencies through consolidation of multiple current configuration management baselines, logistics, and training efforts into a unified support structure.

## Business Case

**Business Case Analysis, including the Analysis of Alternatives:** Key functional requirements for this program which were articulated in the GIG Mission Area and Enterprise Services Initial Capabilities Documents dated November 2003 and March 2004, respectively, and further developed in the CANES CDD dated February 2009, are summarized as follows: CANES will provide the functionality and capabilities required to deploy a Net-Centric enterprise information environment necessary to conduct the full range of military operations defined by the Joint Capability Areas.

Guidance for the AoA was issued March 4, 2008 and the AoA Plan for the analysis was approved on September 25, 2008. The ensuing AoA considered three viable alternatives for the final phase of the AoA process: Consolidate and Enhance (C&E), C&E with two sub-programs, and C&E with two Programs of Record. The AoA resulted in C&E with two sub-programs being selected by USD (AT&L) in the "CANES Acquisition Decision Memorandum" dated December 12, 2008 in support of the CANES MDD. C&E with two sub-programs was chosen as the preferred alternative at the time to reduce programmatic and technical risk between the CCE and Afloat Core Services. Since that time, as further guidance regarding sub-programs was published, it was deemed that the sub-program structure was not applicable for the program. This modification was approved in the CANES MS B Acquisition Strategy signed January 10, 2011.

An Economic Analysis was performed on the selected alternative, and approved by USD (AT&L) in the "CANES Milestone B Acquisition Decision Memorandum" January 10, 2011. The financial return on investment to the Navy from the implementation of CANES is calculated to be 8.1%.

**Firm, Fixed-Price Feasibility:** The determination of the development contract type was based on cost and technical risk associated with satisfying the requirement.

For the Engineering and Manufacturing Development phase of the program, the MDA has selected a cost-type contract because development tasks are sufficiently complex and technically challenging that it is impossible to precisely estimate the cost of satisfying the requirements, and it is not practicable to reduce cost and technical risk to a level that would permit the use of a fixed-price contract. All production options under the current contract are firm fixed-price due to the build-to-print nature of the production effort.

**Independent Cost Estimate:** The Senior Official determined on December 31, 2013 that the program experienced a Critical Change, and the independent cost estimate completed as part of the program evaluation determined that the costs with respect to the program are reasonable.

**Certification of Business Case Alignment; Explanation:** I certify that all technical and business requirements have been reviewed and validated to ensure alignment with the business case. This certification is based on my review of the CANES AoA and Economic Analysis.

### Business Case Certification:

Name: Ms. Ruth A. Youngs Lew

Organization: Navy/PEO Command, Control, Communications, Computers and Intelligence for CANES

CAC Subject: CN=YOUNGS LEW.RUTH.A.1231558760,OU=USN,OU=PKI,OU=DoD,O=U.S. Government,C=US

Date: 3/11/2014 10:16 PM

### Business Case Changes

There has been no significant change to the Business Case since it was last certified.

## Program Status

**Annual Report:** The program is substantially on track to remain within the schedule, cost and performance thresholds identified in the Original Estimate; there have been no Significant or Critical Changes (as defined by 10 U.S.C. Chapter 144A) reported since the previous MAIS Annual Report to Congress.

Schedule

Schedule Events		
Events	Original Estimate Objective	Current Estimate (Or Actual)
Funds First Obligated	Dec 2008	Dec 2008
Milestone B	Jan 2011	Jan 2011
Milestone C	Dec 2012	Dec 2012
Full Deployment Decision	Jun 2015	Oct 2015
Full Deployment <sup>1</sup>	Sep 2024	Sep 2023

Memo

1/ Per the FDD ADM approved by USD(AT&L) on October 13, 2015, the FD date was updated from TBD to September 2024.



## Performance

Performance Characteristics		
Original Estimate Objective/Threshold		Current Estimate (Or Actual)
<b>System Availability</b>		
<b>Critical Services<sup>1</sup></b>		
>= 0.99	>= 0.99	Met Objective
<b>Non-Critical Services<sup>1</sup></b>		
>= 0.95	>= 0.95	Met Objective
<b>Critical User Access Devices<sup>1</sup></b>		
>= 0.99	>= 0.99	Met Objective
<b>Non-Critical User Access Devices<sup>1</sup></b>		
>= 0.85	>= 0.85	Met Objective
<b>Materiel Availability</b>		
<b>Critical Services<sup>1</sup></b>		
>= 0.95	>= 0.95	Met Objective
<b>Non-Critical Services<sup>1</sup></b>		
>= 0.90	>= 0.90	Met Objective
<b>Critical User Access Devices<sup>1</sup></b>		
>= 0.95	>= 0.95	Met Objective
<b>Non-Critical User Access Devices<sup>1</sup></b>		
>= 0.80	>= 0.80	Met Objective
<b>Net-Ready<sup>1</sup></b>		
CANES shall fully support execution of Joint critical operational activities identified in the applicable Joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to	CANES shall fully support execution of Joint critical operational activities identified in the applicable Joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to	Will meet Objective

include: 1) DISR mandated GIG Information Technology standards and profiles identified in the TV-1. 2) DISR mandated GIG KIPs identified in the KIP declaration table. 3) NCOW-RM Enterprise Services. 4) IA requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an IATO by the DAA. 5) Operationally effective information exchanges; and mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable Joint and system integrated architecture views.

include: 1) DISR mandated GIG Information Technology standards and profiles identified in the TV-1. 2) DISR mandated GIG KIPs identified in the KIP declaration table. 3) NCOW-RM)Enterprise Services. 4) IA requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an IATO by the DAA. 5) Operationally effective information exchanges; and mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable Joint and system integrated architecture views.

## Memo

1/ JROC Memorandum 030-09 implements requirements oversight processes for the CANES program in accordance with the Manual for the Operation of the Joint Capabilities Integration and Development System, Enclosure C. These processes incorporate the definition and use of Initial Minimum KPPs instead of KPPs with threshold and objective values. Therefore, the performance metrics shown in the objective and threshold columns of the performance baseline represent the initial minimum values for the JROC-validated KPPs. The CANES KPPs were validated in JROC Memorandum 022-14 in February 2014.

## Acronyms and Abbreviations

DAA - Designated Approval Authority  
 DISR - Department of Defense Information Technology Standards Registry  
 GIG - Global Information Grid  
 JROC - Joint Requirements Oversight Council  
 KIP - Key Interface Profile  
 NCOW-RM - Network Centric Operations and Warfare Reference Model  
 TV - Technical View

**Cost**

CANES				
Appropriation Category	BY 2012 \$M		TY \$M	
	Original Estimate	Current Estimate Or Actual	Original Estimate	Current Estimate Or Actual
Acquisition Cost				
RDT&E	574.7	541.3	664.8	628.9
Procurement	3187.7	3249.0	3686.5	3724.3
MILCON	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0
Total Acquisition Cost	3762.4	3790.3	4351.3	4353.2
Operating and Support (O&S) Cost				
Total Operating and Support (O&S) Cost	6406.8	6019.4	8218.4	7532.3
Total Life-Cycle Cost				
Total Life-Cycle Cost	10169.2	9809.7	12569.7	11885.5

**Cost Notes**

1. This report and the Budget Year IT-1 Exhibit cover different time periods thus the costs will not match.
2. Then Year dollars are included for information purposes only; cost variances will be reported against Base Year dollars.
3. The O&S costs reflect all work performed during that phase, regardless of the type or source of funding.
4. Life-cycle timeframe is FY 2007 through FY 2033. FY 2033 represents the planned Full Deployment in FY 2023 plus ten years. Prior reports reflected the life-cycle timeframe from FY 2007 to FY 2032.